Claims

1. Method of controlling a welding apparatus (1), whereby individual welding parameters, such as a current intensity, a rod feed rate, a welding process, a frequency and/or pulse time of a welding current etc., for example, can be set by the user in the form of a welding job (35 to 39) for a specific welding process by means of a first control unit (22) hard-wired to or integrated in the welding apparatus (1), and several such welding jobs (35 to 39) can be stored in a memory device (28) and, by selecting a welding job (35 to 39) using the first control unit (22), the welding apparatus (1) and the components of the welding system, such as a power component (3), a rod feed system or a rod feed device (11) etc., for example, can be activated on the basis of the parameters stored therein by means of a control system (4), in particular a microprocessor controller (27), and when a second control unit (29) is operated, in particular a push-button element (30) disposed on the welding torch (10), a start signal is sent to the control system (4) in order to initiate the welding operation, wherein the start signal or a control signal is generated by the push-button element (30) of the second control unit (29), in other words of the welding torch (10), and before starting the welding operation, a selection or switch is made between the individual stored welding jobs (35 to 39) by means of the control signal and/or the start-up of the welding operation can be run by generating the start signal via the same push-button element (30).

2. Method according to claim 1, wherein the parameters for an individual welding job (35 to 39) are organized in parameter groups (34) and the different welding jobs (35 to 39) are stored in the memory device (28) in a fixed sequence.

3. Method according to claim 1 or 2, wherein the welding jobs (35 to 39) are stored in the memory device (28) so that they are clearly identified.

4. Method according to one of the preceding claims, wherein the welding jobs (35 to 39) are organized in individual job groups (41, 42) from which at least one welding job (35 to 39) can be retrieved.

5. Method according to one of the preceding claims, wherein the job groups (41, 42)

containing one or more welding jobs (35 to 39) are stored in the memory device (28) so that they are separated from one another by means of empty groups (40) or empty jobs, in other words a welding job (35 to 39) in which no parameters have been set.

6. Method according to one of the preceding claims 1 to 5, wherein at the end of a job group (41, 42), the last welding job (35 to 39) is stored in the memory device (28) with an indicator for a separator signal.

7. Method according to one of the preceding claims, wherein the curve of the output signal of the push-button, in particular the push-button element (30), is used to define the control signal and the start signal on the basis of its frequency and/or its duration.

8. Method according to claim 7, wherein a comparison is run between the output signal generated by the push-button or. push-button element (30) and several possible control signals previously set up in the memory device (28) and the start signal on the basis of their frequency and/or their duration.

9. Method according to one of the preceding claims, wherein the start signal for starting the welding process is defined by a longer depression of the push-button than the control signal for selecting the welding job (35 to 39).

10. Method according to claim 9, wherein, on an appropriate control signal, in particular if the push-button element (30) is depressed for a shorter time, the next welding job (35 to 39) in the sequence is selected from the memory device (28).

11. Method according to claim 9, wherein, on an appropriate control signal, after the last welding job (35 to 39) stored in the memory device (28), the first welding job (35 to 39) stored in this job group (41, 42) is selected.

12. Method according to claim 9, wherein, on an appropriate control signal, in particular if the push-button element (30) is depressed for a medium length of time, the next job group (41, 42) in the sequence after the last empty group (40) or empty job is selected from the memory device (28).

13. Method according to claim 9, wherein, on an appropriate control signal, the next job group (41, 42) in the sequence after the preceding empty group(40) is selected from the memory device (28).

14. Method according to claim 9, wherein, on an appropriate control signal, the first job group (41, 42) stored in the memory device (28) is selected.

15. Method according to one of the preceding claims, wherein any number of jobs (35 to 39) can be defined by the user in a job group (41, 42), and likewise any number of job groups (41, 42) with a different number of welding jobs (35 to 39) stored in them can be set by the user.

16. Method according to one of the preceding claims, wherein a check is run on the selected welding jobs (35 to 39) by the microprocessor controller (27) to ensure that threshold values of the individual parameters have been complied with and a visual and/or acoustic warning is message is emitted by the first and/or second control unit (22, 29) if necessary.

17. Method according to one of the preceding claims, wherein the parameters or the parameter group (21) of the respective welding job (35 to 39) selected are displayed by the first and/or second control unit (22, 29).

18. Method according to one of the preceding claims, wherein during a welding operation, a selection and switch can be made between the individual welding jobs (35 to 39) by means of the control signal generated by the second control unit (29).

19. Control system (4) for a welding apparatus, comprising a first control unit (22), a microprocessor controller (27), comprising a memory device (28) and a power component (3), and the different parameters can be set in the form of welding jobs (35 to 39) by means of the first control unit (22) and the welding apparatus (1) can be activated by the power component (3) on the basis of these parameters, and a second control unit (29) on which a push-button element (30) is disposed for generating a start signal, in particular for running the method according to one of the preceding claims, is provided on the welding torch (10)

of the welding apparatus (1) which is hard-wired to the microprocessor controller (27), wherein the microprocessor controller (27) has an element (32) for evaluating a control signal generated by the second control unit (29) before starting the welding operation, and the second control unit (29) for switching the welding jobs (35 to 39) and for starting the welding process is nothing more than the push-button element (30).

20. Control system (4) according to claim 19, wherein the parameters for the welding jobs (35 to 39) are stored in the memory device (28) in parameter groups (21).

21. Control system (4) according to claim 19 or 20, wherein the individual welding jobs (35 to 39) are separated from one another by empty groups (40).

22. Control system (4) according to one of the preceding claims, wherein the second control unit (29) has a visual and/or acoustic output device (33) for warning messages and/or information.

23. Control system (4) according to claim 22, wherein the visual output device (33) is provided in the form of one or more control lamps, for example LEDs.

24. Control system (4) according to claim 22, wherein the visual output device (33) is provided in the form of a display, for example an LCD.

25. Control system (4) according to one of the preceding claims, wherein the second control unit (29), in particular the welding torch (10), is connected to the control system (4) via a two-terminal electric cable.

26. Control system (4) according to one of claims 19 to 25, wherein the first control unit (22) has an input device, for example in the form of a key pad, as well as a visual and/or acoustic output device, for example in the form of a display, for warning messages and/or information and is hard-wired to the microprocessor controller (15).

27. Control system (4) according to one of claims 19 to 25, wherein the first control unit (22) and the microprocessor controller (27) are provided in the form of a standard

computer, separate from the welding apparatus (1), via an appropriate interface.

28. Use of the method according to one of claims 1 to 18 as a means of controlling a MIG, MAG or WIG welding apparatus.